

Appl. No. 09/884,957

REMARKS

Claims 1-18 are now present in this application.

Claim 1 has been amended and claims 14-18 have been presented.

Reconsideration of the application, as amended, is respectfully requested.

Claims 1-7 and 10-13 stand rejected under 35 U.S.C. §102(b) as being anticipated by Hirano et al., USP 4,704,566. This rejection is respectfully traversed.

Claims 8 and 9 stand rejected under 35 U.S.C. §103(a) over Hirano et al. in view of Hayasahi, USP 5,751,085. This rejection is respectfully traversed.

The Examiner has alleged that the arguments in the prior amendment are not persuasive. The Examiner has noted that the claims are open-ended and can be interpreted as broadly as possible. However, the claims do recite at least two (2) magnetic pins. The Hirano et al. patent does not disclose pins, but instead discloses the use of screws 15. Thus, while independent claim 1 is open-ended and does not exclude the use of screws, it does require two (2) magnetic pins. It is respectfully submitted that such pins are not shown in the Hirano et al. patent and as such, an anticipatory rejection under 35 U.S.C. §102 is improper.

In order to clarify distinctions between the present invention and the utilized prior art, claim 1 has now been amended to further emphasize the positioning of the at least two (2) magnetic pins. As

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seen in Figures 1 and 3, for example, there are induction coils 14a and 14b which are utilized in the present invention. The magnetic pins 17a and 17b are mounted with the coils in guard rings 16. This guard ring is not recited in independent claim 1 but is instead recited in the dependent claims. Nonetheless, in the motor of the present invention, the at least two (2) induction coils are positioned such that they have an upper and a lower surface which is in the first and second planes, respectively. This can be seen in Figure 3. Between these first and second planes, the at least two (2) magnetic pins are positioned as seen in Figure 3.

In the Hirano et al. patent, on the other hand, the screw 15 extends beyond such a plane as seen for example in Figure 1. The Examiner has equated elements 4-1 and 4-2 to be the induction coils and the elements 15 and 15' to be the pins. As noted before, these are not pins, but screws. Nonetheless, the screws 15 and 15' do not have ends which are contained between planes which contain the upper and lower ends of the induction coils.

It is noted in column 4 beginning at line 59, that certain functions for the screws 15 and 15' are used in the Hirano et al. patent. These screws will fix the stator armature 1 on the post 9D and at the same time, facilitate the positioning of the projections formed by screws 15, 15' to enable the control of the cogging force. It is respectfully submitted that the fixing of the post 9D and the stator armature 1 could not be carried out if the screws 15, 15' of

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Hirano et al. did not extend beyond the bottom plane of the induction coil. Moreover, it would not be obvious to one of ordinary skill in the art to change this feature since such fastening could not be carried out and it would destroy the object of facilitating positioning. The Hayashi patent does not overcome these deficiencies of the Hirano et al. reference.

The use of magnetic pins has certain advantages. For example, they can be smaller than screws. Thus, the rotors would be easier to start with such smaller magnetic pins because the magnetic pins attract the rotors.

The pins are also easier to construct than the screws. The shape of the pins can be triangular, rectangular or polygonal but not limited to circular. It is brought out in dependent claim 15, for example, that the magnetic pins are circular. However, as noted, it is possible to use other shape arrangements.

Dependent claim 14 brings out that the pins have a uniform circumference throughout their length. This is unlike the screws 15, 15' of Hirano et al. which have an enlarged head at one end. Moreover, the opposed end of the screws 15, 15' have a tapered end. Thus, the uniform circumference is not found.

Dependent claim 16 brings out the feature of the magnetic pins having a smooth outer surface. Again, this is unlike the threaded surface of the screws 15, 15' of Hirano et al. If smooth surfaces

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were used, then the function of holding stator armature 1 could not be carried out.

Dependent claim 17 brings out that the at least two (2) magnetic pins only contact the guard ring. Thus, the screws 15, 15' in Hirano et al. extend between two elements and do not show this feature. If only one element were contacted, then the affixing feature of Hirano et al. could not be carried out.

Finally, in dependent claim 18, it is also brought out that the guard ring has a planar upper surface and a generally planar lower surface. The at least two (2) magnetic pins are also positioned between these upper and lower surfaces. Again this is not shown in the Hirano et al. patent.

It is respectfully submitted that independent claim 1 as well as the dependent claims of the present application set forth a brushless voice-coil motor which is neither suggested nor rendered obvious by the prior art utilized by the Examiner. The Hirano et al. reference is deficient as noted above and the secondary teachings of Hayashi do not overcome these deficiencies. It is therefore requested that the 35 U.S.C §102(b) and §103 rejections now be reconsidered and withdrawn. Favorable reconsideration and early notice of allowance are earnestly solicited.

In the event the Examiner does not consider this application to be in condition for allowance, it is respectfully requested that this amendment be entered for the purposes of Appeal. Nonetheless,

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it should be unnecessary to proceed to Appeal because the instant application is now in condition for allowance.

In addition, if the Examiner is to persist in her rejection, it is respectfully submitted that the finality of the October 23, 2002 Office Action be withdrawn since pins are not shown and the 35 U.S.C. §102(b) rejection is in error. Nonetheless, it is respectfully submitted that the instant application should now be in condition for allowance.

The Examiner is invited to contact the undersigned at (703) 205-8000 in the Washington, D.C. area if there are any outstanding matters which remain in this application.

**Attached hereto is a marked-up version of the changes made to the application by this Amendment.**

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees

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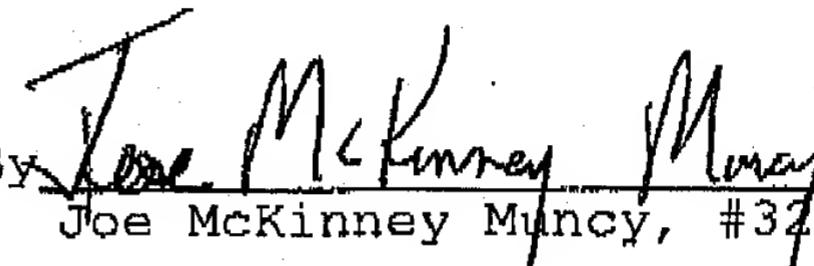
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required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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KM/jeb  
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Attachment: Version with Markings to Show Changes Made

(Rev. 02/20/02)

**FAX RECEIVED**

MAR 25 2003

**T.C. 2800**

A.1. No. 09/884,957

**VERSION WITH MARKINGS TO SHOW CHANGES MADE FAX RECEIVED****IN THE CLAIMS:**

MAR 25 2003

**T.C. 2800**

The claims have been amended as follows:

1. (Amended) A D.C. brushless voice-coil motor, comprising:
  - a circuit board having printed circuits located thereon and at least two electric power supply input contacts;
  - at least two induction coils wound radically and located on the circuit board, an upper surface of each of the at least two induction coils being in a first plane and a lower surface of each of the at least two induction coils being in a second plane;
  - a magnetic element having a plurality of magnetic poles arranged in a co-plane fashion and being disposed above the induction coils;
  - at least two magnetic pins being magnetism conductive and located between the circuit board and the magnetic element, and also being disposed between the induction coils, and becoming magnetized [when contact] by the magnetic element, upper and lower ends of the at least two magnetic pins being between the first and second planes; and
  - a controller located on the circuit board and connected electrically to the induction coils for activating the induction coils to form magnetic poles;
- wherein the induction coils generate magnetism to become magnetic poles to repulse the magnetic element when electric

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current flows through the induction coils thereby enabling the magnetic element to generate rotational kinetic energy.

Claims 14-18 have been added.